

AUSTRALIAN CUMACEA. No. 13⁽¹⁾
THE FAMILY LAMPROPIDAE

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Fig. 1-4

[Read 9 May 1946]

Fam. LAMPROPIDAE

Two species are represented amongst the many Cumacea now available from southern and eastern Australian coasts. Both are referable to *Hemilamprops* and have been taken only between lat. 34°-43° S. and long. 147°-152° E.; the depths range to 120 metres.

Genus HEMILAMPROPS Sars

Hemilamprops Sars 1883, 11 and 55; Stebbing 1913, 55 (ref.).

Hemilamprops is separated from *Lamprops* (Sars, 1863, 239) by male characters only. If *Lamprops carinata* Hart (1930, 34 (12), fig. 4 A-E) is retained in *Lamprops*, then the latter differs from *Hemilamprops* only in that the male lacks pleopods. A few species are referred tentatively to one or other of these genera because the female only is available. A combined key of the females of all species placed in the two genera is therefore given below.

KEY TO FEMALES OF SPECIES OF *Lamprops* AND *Hemilamprops*

- | | | |
|---|--|------------------------------------|
| 1 | Telson with three spines at distal end. | 2 |
| | Telson with more than three spines at distal end. | 9 |
| 2 | Carapace with at least one ridge on each side, below frontal lobe. | 3 |
| | Carapace with sides smooth. | 7 |
| 3 | Peduncle of uropod subequal in length to telson. | 4 |
| | Peduncle of uropod distinctly longer than telson. | 5 |
| 4 | No distinct antennal notch. Carpus of first peraeopod reaching to level of front of carapace. Peduncle of uropod shorter than endopod. | <i>H. uniplicata</i> (Sars) |
| | A distinct antennal notch. First peraeopod shorter, its carpus not nearly attaining level of front of carapace. Peduncle of uropod a little longer than endopod. | <i>L. (?) beringi</i> Calman. |
| 5 | Carapace with a longitudinal ridge near inferior margin and below a carina running from antero-lateral margin to hinder edge. | <i>H. gracilis</i> Hart. |
| | Carapace with no ridge below the carina extending from antero-lateral margin to hinder edge. | 6 |
| 6 | First peraeopod slender, the carpus reaching to level of front of carapace. Peduncle of uropod longer than endopod. | <i>H. macsoni</i> Hale. |
| | First peraeopod stout, the carpus not nearly reaching to level of front of carapace. Peduncle of uropod subequal in length to endopod. | <i>H. lata</i> sp. nov. |
| 7 | Median dorsal crest of anterior half of carapace not denticulate. | <i>H. (?) ultimae spei</i> Zimmer. |
| | Median dorsal crest of carapace denticulate | 8 |
| 8 | Dactylus of first peraeopod longer than propodus and twice as long as carpus. | <i>H. cristata</i> Sars. |
| | Dactylus of first peraeopod shorter than propodus and little longer than carpus. | <i>H. pellucida</i> Zimmer |

⁽¹⁾ For No. 12 see Rec. S. Aust. Mus., 8, (3), 357-444, fig. 1-60

- 9 Telson with five spines at distal end. 10
 Telson with more than five spines at distal end. 21
- 10 Peduncle of uropod considerably shorter than telson. *H. diversa* sp. nov. 11
 Peduncle of uropod at least as long as telson. 12
- 11 Carapace with at least one ridge on each side. 12
 Carapace without lateral ridges. 16
- 12 Carapace with not more than two ridges on each side. 13
 Carapace with three or four ridges on each side. 14
- 13 Carapace with a single curved ridge on each side below frontal lobe: pseudorostrum short, truncate in front. *H. (?) californica* Zimmer, 15
 Carapace with two ill-defined curved ridges crossing each branchial region: pseudorostrum longer, tapering to the subacute front. *L. sarsi* Derjavin.
- 14 Uropod with first joint of exopod distinctly shorter than second. *L. fasciata* Sars. 15
 Uropod with first joint of exopod subequal in length to second.
- 15 First joint of endopod of uropod more than half as long again as combined lengths of second and third joints. *L. krasheniinikovii* Derjavin. 15
 First joint of endopod of uropod little longer than second and third together. *L. quadruplicata* S. I. Smith (*).
- 16 Peduncle of uropod subequal in length to telson. 17
 Peduncle of uropod distinctly longer than telson. 18
- 17 Antero-lateral margin of carapace not dentate. All distal spines of telson truly terminal *L. fuscata* Sars. 18
 Antero-lateral margin of carapace with five teeth. Two of distal spines of telson situated below the other three. *L. serrata* Hart (*).
- 18 First antenna almost three-fourths as long as carapace. Carpus in posterior peraeopods three times as long as merus. *L. (?) comata* Mimmer (*). 19
 First antenna not more than half as long as carapace. Carpus in posterior peraeopods at most not much longer than merus. 19
- 19 Peduncle of uropod longer than endopod. *L. carinato* Hart. 20
 Peduncle of uropod shorter than endopod. 20
- 20 Carapace with denticulate median dorsal crest; eye wanting. Telson not much shorter than peduncle of uropod. *H. normani* Bonnier. 20
 Carapace without denticulate dorsal crest; eye developed. Telson only half as long as peduncle of uropod. *L. korroensis* Derjavin (*).
- 21 Telson with six spines at distal end. Eye without corneal lenses. *H. assimilis* Sars. 21
 Telson with eight spines at distal end. Eye with eight corneal lenses. *H. rosea* (Norman).

Hemilamprops lata n. sp.

Ovigerous female—Integument thin but calcified and brittle; reticulate pattern somewhat diffuse.

Carapace more than one-fourth of total length of animal, and a little more than pedigerous somites together; it is very broad, half as wide again as deep and as wide as long; on its upper surface a sharp carina runs from the ocular lobe to about middle of length, and terminates at anterior end of a wide median gutter which is margined on each side by a crest-like ridge which extends practically to posterior margin; a short and not very well-defined carina extends from the front of each pseudorostral lobe towards frontal lobe, and from neighbourhood of antennal angle to posterior margin is a rugose ridge resulting from the sudden inflexing of the inferior lateral part of carapace; posterior parts of sides with short, irregular, and not well-defined ridges. Ocular lobe not much wider

(*) See remarks by Calman, 1912, 629. *L. fasciata*, *quadruplicata* and *krasheniinikovii* (Derjavin, 1926, 179, pl. iii, fig. 6, and pl. vi) seem to be very closely related.

(*) *vide* Hart, 1930, p. 14 and fig. 4 F.

(*) Possibly representative of a new genus.

(*) A species from fresh water.

than long and with small corneal lenses. Pseudorostral lobes widely truncate and slightly concave, both as seen from above and from the sides; meeting for a distance equal to only about one-twentieth of total length of carapace. Antero-lateral angle subacutely rounded; no distinct antero-lateral sinus.

First pedigerous somite short, smooth except for some obscure tubercles at anterior margin, and partly concealed by pleural parts of second, which is dorsally longer than any of the others; second somite with a pair of dorsal carinae, on each side of which is a dorso-lateral ridge and a broken lateral carina; third with ridges as in second but with the lateral ones more distinct; in fourth and fifth somites the same ridges are present but are short and those of the sides tend to become almost tooth-like.

First three pleon somites with, on each side, a longitudinal dorso-lateral carina, a lateral ridge and a faint infero-lateral carina; fourth to fifth somites each with a strong, median, longitudinal carina, flanked on both sides by a lateral ridge and an infero-lateral ridge; the last, though feeble, is more distinct than that of third somite; fifth somite little longer than fourth (which is longer than the subequal first three somites) and with sides subparallel and a little sinuate; sixth somite only about half as long as fifth, very slightly dilated at the rear where it is distinctly broader than long; like the two preceding somites it has a median dorsal ridge (but one that is much less pronounced) flanked on each side with a dorso-lateral carina and an obsolete lateral ridge; telson elongate, subtriangular, roundly subtruncate at distal end and more than twice as long as sixth pleon somite; each lateral margin of telson is very finely serrate for part of proximal half and in distal half bears half-a-dozen articulated spines; its apex is furnished with three spines subequal in length.

First antenna with first segment of peduncle subequal in length to second and third together, and second fully twice as long as third; flagellum as long as second and third peduncular segments together, two-jointed (possibly a third minute joint), the second joint more than half as long again as first; accessory lash four-fifths as long as main flagellum, two-jointed, the second segment twice as long as first. Second antenna with second segment short, third shorter than first and a little longer than fourth.

Palp of first maxilla with two filaments.

Basis of third maxilliped only about one-fifth as long as combined lengths of remaining joints, with external distal angle not at all forwardly produced and furnished with two very long plumose setae; ischium very short; merus with a forwardly produced but not greatly dilated outer lobe; carpus longer than either merus or propodus, which are subequal in length and each longer than dactylus.

First pereopod stout and rather short, the carpus not reaching nearly to level of anterior margin of carapace; basis not much more than two-thirds of length of rest of limb; carpus longer than ischium and merus together and about equal in length to propodus; dactylus subequal in length to merus, and with longest terminal seta (like distal setae of propodus) as long as propodus.

Second pereopod five-sixths as long as first leg; basis subequal in length to rest of limb and with exopod rather small; ischium relatively large, armed with a strong distal spine as well as slender setae; merus half as long as carpus and with a stout inner distal spine; carpus longer than propodus and dactylus together and with a row of inner spines, one near proximal end being longer than the others; dactylus twice as long as propodus, with distal setae short.

Third and fourth pereopods with two-jointed exopods; basis in third pair nearly twice as long as rest of limb, that of fourth half as long again as remaining joints together, that of fifth a little shorter than the rest of limb; in all three

posterior limbs the merus, carpus, propodus and dactylus successively decrease a little in length while the two longest distal carpal setae together with the propodal seta reach well beyond the tip of dactylus.

Peduncle of uropod so strongly keeled above that it is subtriangular in section and with a score of spines on inner margin; it is one-fourth as long again as telson; endopod barely shorter than peduncle, with first segment not very much longer than second and third joints combined and second distinctly shorter than third; spines of inner margins of joints of endopod respectively sixteen, five and six, and stout terminal spine only half as long as distal joint; exopod equal in length to first and second endopodal segments combined,

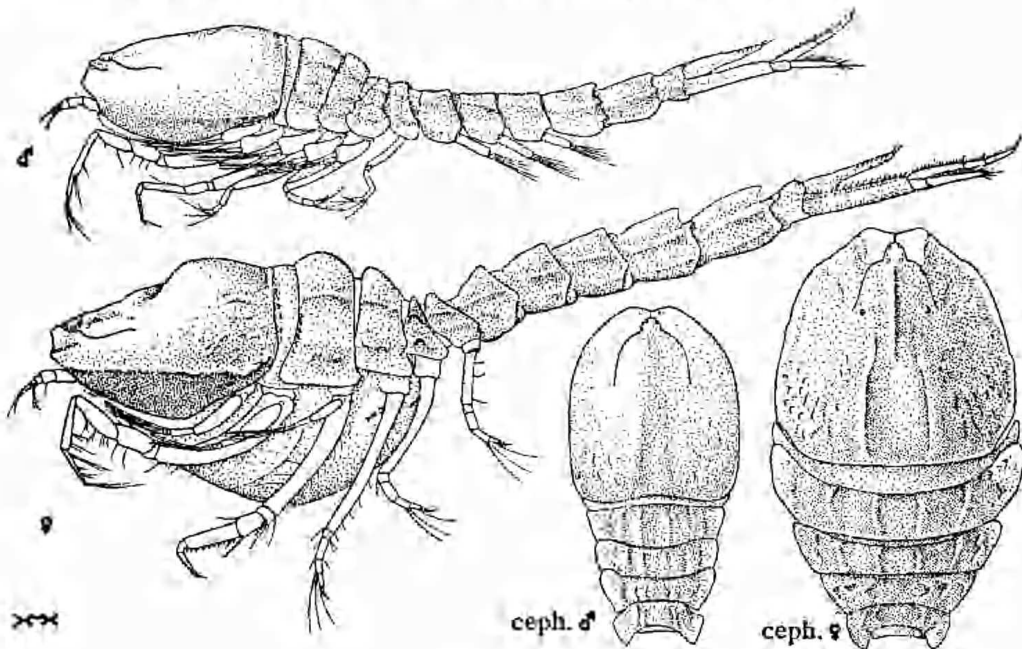


Fig. 1

Hemilamprops lata, type female and allotype male; lateral views and (ceph.) cephalothorax from above (x 23).

Colour, creamy-white. Length, 6.4 mm.; embryo with pleon curved over back, 0.42 mm.

Adult male—Integument brittle, less calcified than in female, but with sculpture similar though less pronounced; the crests on the branchial regions of the carapace in particular are noticeably less elevated, so that as seen from the side the dorsal outline is far less irregular.

Carapace a little longer in relation to total length of animal than in adult female and less broadened posteriorly; seen from above it is suboval in shape; nearly half as wide again as deep, longer than wide and almost twice as long as broad. Antero-lateral margin as in female, but antero-lateral angle rather more obtuse.

Telson relatively a little longer than in female, but with similar armature; the median of the three terminal spines is shorter than the other two.

First antennae with first peduncular segment longer than in female and with both flagella three-jointed, the distal joint in both longer than either of the remaining two. Second antenna with flagellum reaching quite to end of fifth pleon somite.

Mandible with ten and eleven spines in the row.

Third maxilliped as in female except that basis and exopod are wider.

First peraeopod relatively a little longer than in female, the basis being five-sixths of combined lengths of remaining joints, and propodus a trifle longer than carpus.

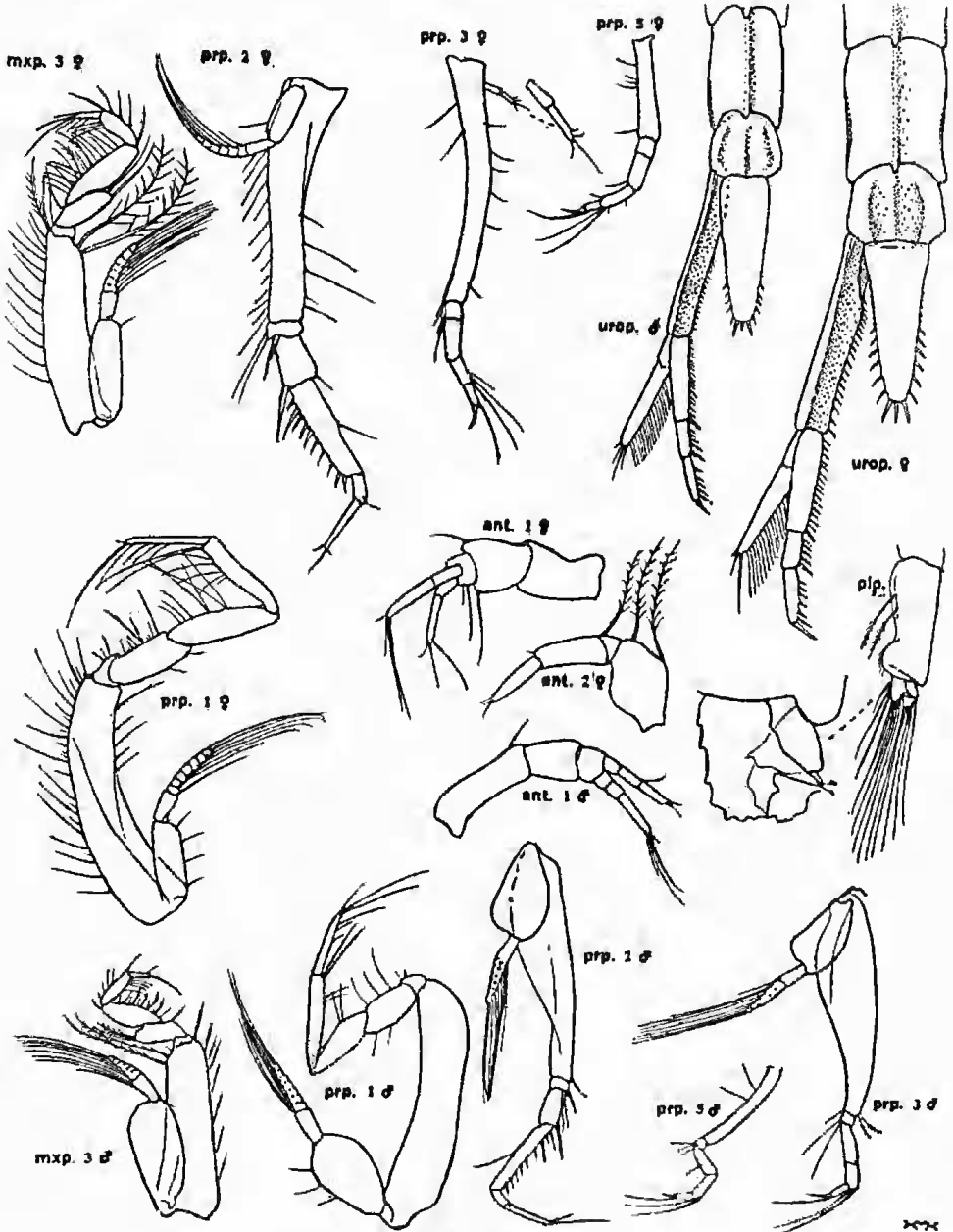


Fig. 2

Hemilamprops lata, type female and allotype male; ant., antennae (x 56); mxp., third maxilliped (x 30); prp., first to third and fifth peraeopods (x 30); plp., pleopod (x 56; rami, x 250); urop., uropod with fifth and sixth pleon somites, and telson (x 30).

Basis of second peraeopod one-sixth longer than rest of limb; armature and proportions of joints otherwise much as described.

Third pereopod not specially modified, differing only from that of female in the wider basis and large exopod, which has the peduncle, as in first and second pairs, very broad.

The three pairs of pleopods are similar to those figured for other species of the genus (fig. 2, plp.).

Peduncle of uropod less than one-fifth longer than telson and barely longer than endopod, the first joint of which is armed with a greater number of spines than in the female.

Length, 5 mm.

Loc.—New South Wales: off Sydney, from stomach of Morwong or Jackass Fish—*Dactylopagrus macropterus* (A. C. Simpson, July 1939); off Coffs Harbour, 50 metres (K. Sheard, A. Trawl, June 1941); 11 miles off Eden, 120 metres (type female, K. Sheard, A. Trawl, Jan. 1943); off Wata Mooli, 70 metres (allotype male, K. Sheard, Trawl Station 4, July 1943); 5 miles east of Port Hacking, 100 metres, on mud (K. Sheard, Trawl Station 7, July 1943); off Jibbon, 45-50 metres, on coarse sand (K. Sheard, Trawl Station 10, Aug. 1943); off Ulladulla, 75 metres and 80 metres, on coarse sand (K. Sheard, A. Trawl, June and Aug. 1944). Tasmania: off Babel Island, lat. 39° 55' S., long. 148° 31' E. ("Warreen" Station 29, Jan. 1939). Types in South Australian Museum, Reg. No. 2,802 and 2,804.

The type is the largest female available; other ovigerous examples are only 4.0 mm. and 5.5 mm. in length and the uropod has fewer spines, there being sometimes only about ten on first joint of endopod and fifteen on peduncle, which also may be a little shorter in relation to the telson. Almost always the median of the three terminal spines of the telson is distinctly shorter than the others, as in the male figured (fig. 2, urop. ♂). In small immature specimens (3 mm. or so in length) the carapace has the sides, as seen from above, converging slightly towards the rear, and it is less widened than in the adult, but is still broader than in the related Antarctic *marsoni* Hale. The last-named bears a close general resemblance to *lata* but is separated by its relatively gigantic size (the immature female, 20.5 mm.), the shape of the pseudorostral lobes which are not widely subtruncate in front, the character of both first and second antennae, the less robust pereopods, the different proportions of the uropods, etc. It should be noted that the cleaning and mounting of the posterior appendages of the single available young female of *marsoni* shows that very small exopods are present on the third and fourth pereopods (see Hale, 1937, 46).

Hemilamprops diversa n. sp.

Ovigerous female—Integument semi-membranous with small reticulate patterning (especially distinct on carapace), but almost polished; smooth except for the sculpture of carapace as described.

Carapace short and robust, less than one-fifth of total length of animal, three-fourths as long as pedigerous somites together, very little wider than deep and not much longer than broad; seen from above the sides are curved and converge towards the widely subtruncate front; on the back a sharply defined, median carina runs from the ocular lobe to about three-fourths of length of carapace; in posterior fourth the dorsum is depressed between the slightly swollen branchial regions, the indentation emphasised on each side by a feeble crest, which fades into a faint antero-lateral fold continuing forward outside (or below) the frontal lobe; the dorsum is hollowed on each side between the median carina and the frontal-lobe sutures. Antero-lateral margin almost straight, very slightly concave, and scarcely any indication of antennal angle. There is no distinct pseudo-

rostrum, the lobes only just meeting in front of ocular lobe, which is rounded, with small lenses. Frontal lobe large, extending to about half length of carapace.

First pedigerous somite short, its pleural parts partly overlapped by those of second which, like the third, is longer than any of the other somites; none is much expanded laterally.

Pleon distinctly longer than cephalothorax; first and second somites subequal in length, then successively increasing in length to fifth which is two-thirds as long again as sixth and tapers to the rear; sixth little dilated posteriorly, where it is distinctly wider than long; telson narrowly subtriangular, rounded at distal end and twice as long as sixth somite; each of its lateral margins bears three slender,

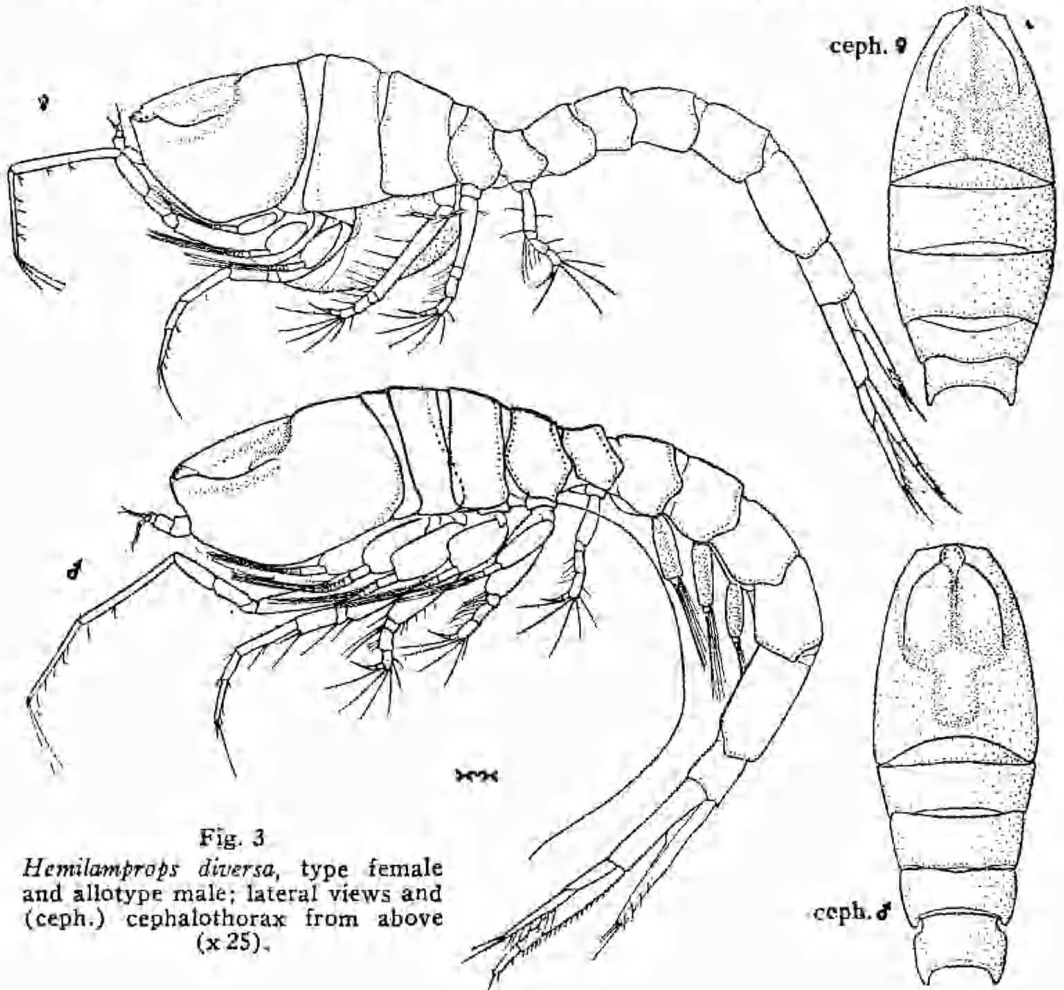


Fig. 3

Hemilamprops diversa, type female and allotype male; lateral views and (ceph.) cephalothorax from above (x 25).

finely serrate, spines; its distal end has three similar spines subequal in length, and above these a pair of much longer subapical slender spines.

First antenna with first joint of peduncle longer than second and third segments together; second twice as long as third; flagellum three-jointed, as long as second and third peduncular segments together and with second joint much the longest; accessory lash two-jointed, two-thirds as long as main flagellum. Second antenna as usual in female of genus; second segment about half as long as third, which is a little shorter than fourth.

Mandibles with ten and eleven spines in the row.

Basis of third maxilliped half as long again as remaining joints together and with outer distal angle rounded but not at all forwardly produced; merus slightly dilated, nearly three times as long as ischium, and two-thirds as long as carpus which is little longer than propodus.

First pereopod with carpus reaching to level of front of carapace and with propodus and dactylus long and slender; basis half as long as remaining joints together, carpus not much longer than merus; propodus one-fifth as long as dactylus and longer than ischium, merus and carpus together.

Second pereopod two-thirds as long as first; basis little longer than distinct ischium, merus and carpus together; carpus half as long again as merus and almost twice as long as propodus which is about two-thirds as long as dactylus.

Third and fourth pereopods with two-jointed exopods; basis of third half as long again as remaining joints together, that of fourth about as long as rest of limb, of fifth much shorter than this; merus, carpus and slender dactylus of posterior limbs subequal in length and propodus much shorter; three distal carpal setae, like propodal seta, reaching well beyond tip of dactylus.

Peduncle of uropod less than four-fifths as long as telson, armed with half-a-dozen slender spines on distal half of inner margin; endopod nearly half as long again as peduncle and one-fifth as long again as exopod, with its first segment one-fourth as long again as combined lengths of second and third, which are subequal in length; spines of inner margins of joints respectively twelve, four and three, and terminal spine as long as distal joint.

Length, 4.5 mm.; ova approximately 0.28 mm. in diameter.

Adult male.—Carapace with sculpture much as in female except that the median dorsal carina of anterior half is grooved medianly, producing the effect of a pair of ridges when seen from above; viewed thus the carapace is narrower at the rear, where it is not much wider than deep and about two-thirds as broad as long; it is equal in length to the pedigerous somites together and is more than one-fifth of total length of animal.

First pedigerous somite shorter than the others, which do not differ much in length and are not expanded laterally.

Pleon a little longer in relation to cephalothorax than in female but somites one to six of the same proportions; telson two and one-half times as long as sixth somite, each of its lateral margins with four spines, its rounded distal end with three spines but differing from those of female in that the median one is nearly twice as long as the others; there are similarly two subapical spines, seated on the dorsal surface, which are longer than any of the other telsonic spines (see fig. 4, tels. ♂).

First antenna relatively very slightly larger than in female but with flagella more subequal in length, each composed of three distinct segments, the distal of which is the longest. Second antenna with flagellum reaching well beyond end of sixth pleon somite.

First pereopod with carpus reaching a little beyond level of anterior margin of carapace; basis two-thirds as long as remainder of limb; carpus quite as long as merus and ischium together; propodus and dactylus each longer in relation to combined lengths of ischium, merus and carpus than in female.

Second pereopod more than two-thirds as long as first; basis longer than the next four segments of limb.

Third pereopod with no specialized appendages but like fourth with basis relatively wider and longer than in female and with the usual wide exopods; setae of all posterior pereopods as in female.

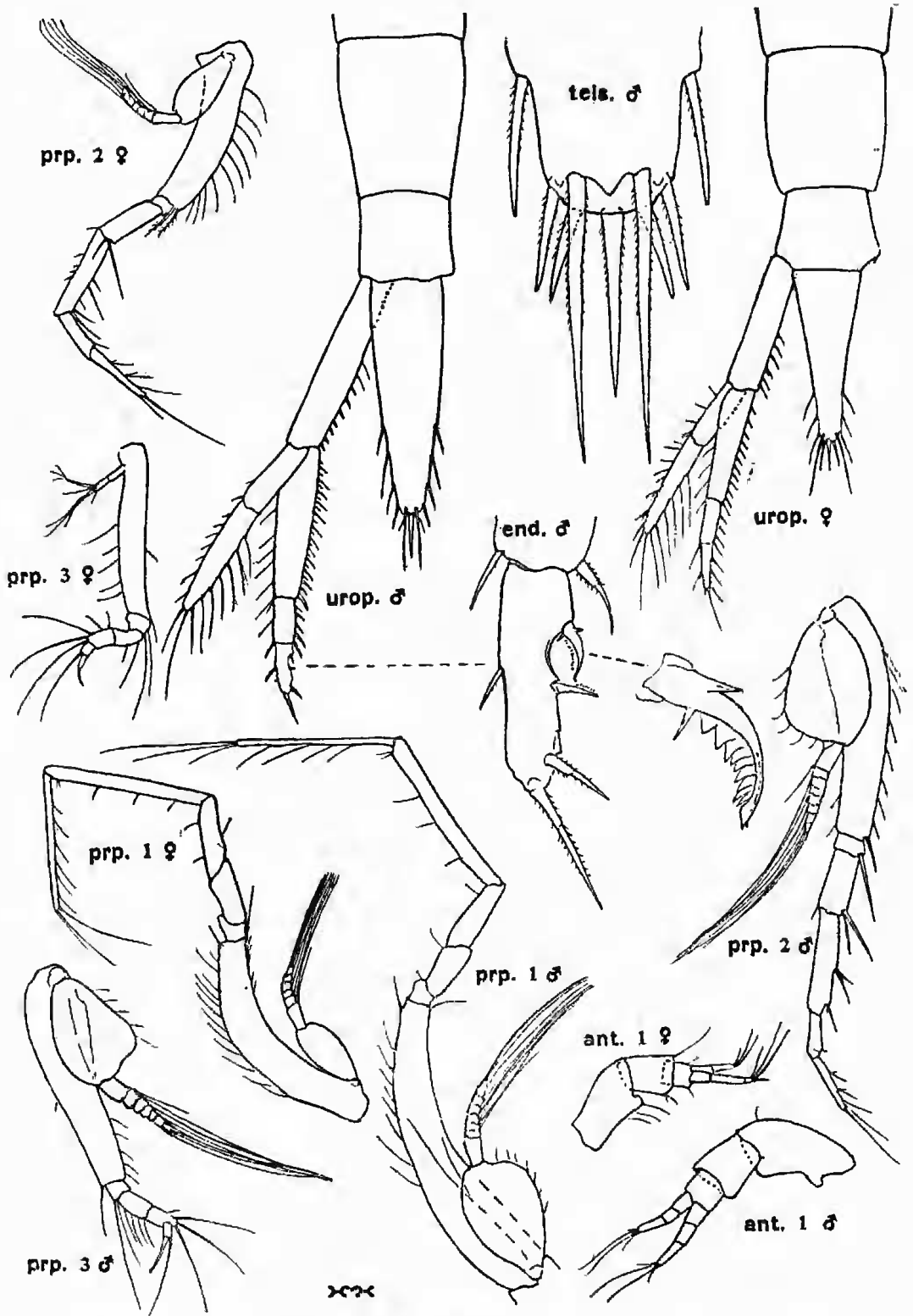


Fig. 4

Hemilamprops diversa, type female and allotype male; ant., first antenna (x85); prp., first to third peracopods (x45); urop., uropod with fifth and sixth pleon somites and telson (x45); end., last segment of endopod of uropod (x180; spine, x550); tels., distal end of telson from above (x180).

Peduncle of uropod longer in relation to fifth pleon somite than in female but still less than four-fifths as long as telson; in distal half it is armed with seven short, stout serrate spines, preceded by a couple of more slender spines; endopod only one-third as long again as peduncle and one-fourth as long again as exopod, the inner margin of its first segment with two dozen spines (alternatively long and short) and its second joint with five inner spines; third segment of endopod specialized, there being at second-fourth of length of inner margin a recess, at both proximal and distal ends of which is an articulated spine more modified than the others margining the ramus; the proximal spine is curved backwards and inwards, has two small triangular projections near the base and has on the inner (or posterior) margin a thin lamellate and serrate plate (fig. 4, end. ♂); the spine at posterior end of the recess, and also a short subapical and longer apical spine of the joint are divided in proximal half by a suture.

Length, 5 mm.

Loc.—New South Wales: off Broughton Island (K. Sheard, submarine light, 11.30 p.m. to midnight, Dec. 1938); off Sydney, from stomach of Morwong or Jackass Fish—*Dactylopagrus macropterus* (A. C. Simpson, July 1939); off Coffs Harbour, 50 metres (K. Sheard, A. Trawl, June 1941); 11 miles off Eden, 120 metres (K. Sheard, A. Trawl, Mar. 1943); off Wata Mooli, 70 metres (K. Sheard, A. Trawl, July 1943); off Gibbon, 70 metres (K. Sheard, A. Trawl, July 1943); 4 miles off Eden, 70 metres, in silt (type loc., K. Sheard, Oct. 1943); 5 miles off Eden, 60 metres, on mud (K. Sheard, submarine light, Dec. 1943); 14 miles east of Cronulla, 150 metres, on mud (K. Sheard, Jan. 1944); off Ulladulla, 75 metres and 60 metres on coarse sand (K. Sheard, A. Trawl, June and Aug. 1944). Tasmania: south end of Marion Bay (W. S. Fairbridge, Euphausiid bottom net, Dec. 1944). Types in South Australian Museum, Reg. No. C. 2,809-2,810.

The size is a little variable (adult male, Tasmania, 5.5 mm.), as is also the armature of the lateral margins of telson and inner edge of first joint of endopod of uropod; the spines of the distal end of telson (three truly terminal and a longer subapical pair) are constant. An ovigerous female 5 mm. in length has five spines on each lateral margin of telson and fourteen inner spines on first joint of endopod of uropod. A male has fourteen short and fourteen longer spines on inner margin of endopod of uropod, but the spines of second and third joints of this ramus are as in type and paratype adult males. The peduncle of the uropod may be very slightly longer in relation to the endopod of that appendage than in the types.

The specialized third segment of the endopod of the uropod of the adult male seems to be distinctive for the species.

Of the forms referred to *Hemilamprops* and *Lamprops*, *Hemilamprops* (?) *californica* Zimmer (1936, 429, fig. 36) and perhaps also *Lamprops serrata* Hart (1930, 36 (14), fig. 4, F-G) agree with *diversa* in having a pair of telsonic spines which are neither truly terminal nor lateral. In Zimmer's paper these spines are figured and described as being situate "Below, and somewhat external to the two lateral spines" of the terminal three, whereas in *diversa* they emanate from above the three terminal spines. Hart's fig. 4, F shows for *Lamprops serrata* a pair of spines seated, apparently, beneath the three terminal spines.

Amongst the differences separating *diversa* from the Californian species the different sculpture of the carapace and the proportions of the uropod may be mentioned; in Zimmer's species the peduncle of the last-named is as long as the endopod, and is fully as long as the telson.

SUMMARY

The first two representatives of the family Lampropidae to be noted from Australian waters are described. Both occur, apparently fairly commonly, off the eastern coasts of Australia and Tasmania, between lat. 34°-43° S. The forms are *Hemilamprops lata* and *H. diversa* spp. nov.

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